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| APPLICATION NO./ CONTROL NO. | FILING DATE | FIRST NAMED INVENTOR / PATENT IN REEXAMINATION | ATTORNEY DOCKET NO. |
|---------------------------------|-------------|---|---------------------|

09/476,468 12/30/99 THOMASSON

S 10205,020

EXAMINER

PAUL F WILLE
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SCOTTSDALE AZ 85254

TM02/1106

| | |
|-----------|-------|
| HAROLD, J | |
| ART UNIT | PAPER |

2644 6

DATE MAILED: 11/06/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Regards,

Jeffrey J. Harold

JFHarold
(703) 306-5836

HG

Office Action Summary

Application No.

09/476,468

Applicant(s)

THOMASSON, SAMUEL L.

Examiner

Jefferey F. Harold

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8 and 11 is/are rejected.
- 7) ☒ Claim(s) 6, 9, 10 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. ***Claims 1 and 2*** are rejected under 35 U.S.C. 102(b) as being anticipated by Berkley et al. (United States Patent Re. 28,919), hereinafter referenced as Berkley.

Regarding **claim 1**, Berkley discloses a speech processor using controlled center clipping. In addition, Berkley discloses a speech processing unit (17), as disclosed at column 3, lines 29-35 and exhibited in figures 1 and 6, coupled between the band input filters (19-23), as disclosed at column 3, lines 33-35 and exhibited in figures 1 and 6, and the summing junction (33a), as disclosed at column 4, lines 4-5 and exhibited in figure 1;

control unit (18) coupled to the speech processing unit (17) for coupling a subset of the band input filters (19-23) to the summing junction (33a), as disclosed at column 3, lines 26-27 and exhibited in figures 1 and 6.

Regarding **claim 2**, Berkley discloses everything claimed, as applied above (see claim 1), in addition Berkley discloses wherein the band input filters (19-23) have a pass band of one third octave, as disclosed at column 5, lines 5-7.

2. **Claims 3-5** are rejected under 35 U.S.C. 102(b) as being anticipated by Petri et al. (United States Patent 4,991,167), hereinafter referenced as Petri.

Regarding **claim 3**, Petri discloses voice controlled attenuation adjustment in telephone transmission circuits. In addition, Petri discloses a method for providing full duplex operation in a two channel system wherein each channel includes polyphase filters (APF_1 and APF_2), as disclosed at column 4 lines 1-4 and exhibited in figure 2, the method comprising the steps of:

applying an input signal (E1) to a first channel and input signal (E2) to a second channel, as disclosed at column 4, lines 3-16 and exhibited in figure 2.

the balance level circuit (PW1 to PWn), as disclosed at column 4, lines 29-30 and exhibited in figure 2, is adjusted so that the attenuation device (DG1.1 to DG1.n), as disclosed at column 4, lines 31-33 and exhibited in figure 2, receives greater attenuation. The balance level circuit provides indication to the attenuation device, therefore the magnitude of the signal is determined/indicated in each channel, which reads on claimed providing of indication step;

allocating the sub-band signals (TF1 to TFn), as disclosed at column 4 lines 5-6 and exhibited in figure 2, in the first channel to a first channel output (S1), as exhibited in figure 2, and the sub-band signals (TF1 to TFn), as disclosed at column 4 lines 16-17 and exhibited in figure 2, in the second channel to a second channel output (S2) in accordance with the magnitudes of the sub-signal (TF1 to TFn) in each polyphase filter (APF_1 and APF_2), as disclosed at column 4, lines 21-23 and exhibited in figure 2.

Regarding **claim 4**, Petri discloses everything claimed, as applied above (see claim 3), in addition Petri discloses allocating steps of:

(a) comparing the magnitude of the sub-signals (TF1 to TF_n) in a polyphase filter (APF₁) in the first channel with the magnitude of the sub-signal (TF1 to TF_n) in a corresponding polyphase filter (APF₂) in the second channel, as disclosed at column 4 lines 34-49;

(b) adjustable attenuation devices (DG) are provided for each frequency sub-bands TF1 to TF_n, then the signal is reconstituted by the synthesis polyphase filter band (SFP) is emitted at the sending output (S1 or S2), as disclosed at column 4, lines 5-22, therefore all of the sub-bands (TF1 to TF_n) are coupled to the respective channel output. In addition the sub-band filters (TF1 to TF_n) are adjustably allocated with a predetermined amount of attenuation between the first channel and second channel to allow the signal with the greater magnitude to emitted to the output, as disclosed at column 6, lines 4-14, which reads on claimed coupling step.

(c) the level balance circuits (PW1 to PW_n) ascertain which sub-bands (TF1 to TF_n) are more voice active, and as a result the attenuation devices (DG) of the less active signal increase the amount of attenuation for the less active signal, as disclosed at column 4, lines 51-57, which reads on claimed suppressing step

(d) steps a and b are repeated for each pair of sub-bands (TF1 to TF_n), as disclosed at column 4, lines 39-48.

Regarding **claim 5**, Petri discloses everything claimed, as applied above (see claim 3), in addition Petri discloses allocating steps of:

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(a) finding the sub-band (TF1 to TF_n) having the largest signal, as disclosed at column 4, lines 24-33;

(b) as disclosed above in claim 4(b) all of the sub-band are coupled and the control device (SE) determines which channel is coupled to the output, as disclosed at column 4, lines 49-57;

(c) inherently going to the other channel, as evidenced by the fact that one of ordinary skill in the art would have recognized that during a conversation the circuit would monitor both channels of the for voice and non-voice communication.

(d) inherently repeating steps (a), (b), (c) for each next largest signal, as evidenced by the fact that one of ordinary skill in the art would have recognized every signal, largest to the smallest, provided to the circuit would be analyzed to determine which signal would be provided and which would be further attenuated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. ***Claims 7-8 and 11*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Petri in view of Berkley.

Regarding **claim 7**, Petri discloses everything claimed, as applied above (see claim 3), however, Petri fails to disclose determining the duration of a signal exceeding a threshold and not allocating the signal if it exceeds a predetermined period. However, the examiner maintains that it was well known in the art to provide determining the duration of a signal exceeding a threshold and not allocating the signal if it exceeds a predetermined period, as taught by Berkley.

In addition, Berkley discloses wherein on sensing a signal, each peak detector (39-43) generates an output that increases with rise-time comparable to the speech bandwidth present. Thus, the control signal generated in a detector (39-43) causes the clipping level to be at all times at least as high as necessary to prevent passage of the echo signal present in the subbands. As an alternative, the clipping may be adapted to return to a fixed minimum value, thus reducing undesired signals, as disclosed at column 4 lines 40-68 and exhibited in figure 4, which reads on claimed determining and not allocating step.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Petri by specifically providing determining the duration of a signal exceeding a threshold and not allocating the signal if it exceeds a predetermined period, as taught by Berkley, for the purpose of reducing noise.

Regarding **claim 8**, Petri discloses a first channel with polyphase filters (APF1) with a line output, and a second channel with polyphase filters (APF2). In addition, Petri discloses a controller for coupling complementary subsets of filters to the respective outputs, as disclosed at column at column 3, lines 24-60, and exhibited in figure 2, however, Petri fails to disclose a first multiplex circuit for coupling and a second multiplex circuit for coupling. However, the examiner maintains that it was well known in the art to provide a first multiplex circuit for coupling and a second multiplex circuit for coupling, as taught by Berkley.

Regarding the first multiplex circuit, Berkley discloses a control unit (18) with input band input filters (19-23), that selects signals to be forwarded, as disclosed at column 3, line 25 through column 4, line 6 and exhibited in figures 1 and 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Petri by specifically providing a first multiplex circuit for coupling, as taught by Berkley, for the purpose of selecting subsets of the signals in accordance with the magnitude of the signals in each band.

Regarding a second multiplex circuit for coupling, Berkley discloses a speech processing unit (17) with output band input filters (29-33) that selects signals to be

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forwarded, as disclosed at column 3, line 25 through column 4, line 6 and exhibited in figures 1 and 6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Petri by specifically providing a first multiplex circuit for coupling, as taught by Berkley, for the purpose of selecting subsets of the signals in accordance with the magnitude of the signals in each band.

Regarding **Claim 11** Petri disclose a method for processing an electrical signal, in addition, Petri discloses a method comprising the steps of:

applying an electrical signal to a plurality of polyphase (APF) filters to produce a sub-bands (TF1 to TF_n) output signals;

providing indication of each filtered output signal and attenuating a filter sub-band output signals.

However, the Petri combination fails to disclose signal duration. However, the examiner maintains that it was well known in the art to provide for signal duration, as taught by Berkley.

In addition, Berkley discloses wherein as a detected echo signal commences to subside, the detector (39-43) briefly hold the clipping level at the most recent control signal peak obtained. This hold time may be up to 25 ms, as disclosed at column 4 line 64 through column 5 line 5, which reads on claimed signal duration.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Petri by specifically providing signal duration, as taught by Berkley, for the purpose of reducing noise.

Allowable Subject Matter

4. ***Claims 6, 9-10 and 12*** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 6**, the prior art of record failed to specifically disclose or fairly suggest a method with allocating steps that include finding the band with the largest signal, coupling the signal from that band and from alternate bands in the same channel to the channel output for those bands, blocking the corresponding bands in the other channel from the channel output for those bands, and coupling the remaining bands in the other channel to the channel output for those bands.

Regarding **claim 9**, the prior art of record failed to specifically disclose or fairly suggest a telephone wherein a controller includes a amplitude detector for each band and controls the first and second multiplex circuit in accordance with the amplitudes of the signals in each band.

Regarding **claim 12**, the prior art of record failed to specifically disclose or fairly suggest a method wherein the providing step includes providing an indication of the magnitude of each filtered output signal and wherein the attenuation step includes attenuating a filtered output signal if the magnitude of the filtered output signal exceeds a predetermined amount and the duration of the filtered output signal exceeds a predetermined period.

Response to Arguments

5. Applicant's arguments filed August 28, 2001, have been fully considered but they are not persuasive.

Regarding applicant's arguments concerning "a multiplex circuit", the examiner respectively disagrees, since Berkley discloses where the speech processing unit (17), with particular emphasis on paths 12 and 13, contains multiplexing equipment as supported at column 3, lines 17-21.

Regarding applicant's arguments concerning "a control means", the examiner respectively disagrees, since Berkley discloses where the control unit (18) is coupled to the multiplex circuit of paths 12 and 13.

Regarding applicant's arguments concerning "subset filters", the examiner respectively disagrees, since Berkley discloses where control unit (18) couples a subset of the band input filters to the summing circuit, since when an echo signal is present, the clipping level is increased so that a subset (i.e., non-echo signal) is only generated to the summation circuit.

Regarding applicant's arguments concerning "1/2 octave", the examiner respectively disagrees, since Berkley simply states that the 1/3 octave filter may be used at the top of frequency band. There is no disclosure of using a single filter.

Regarding applicant's arguments concerning "full-duplex", the examiner respectively disagrees, since Petri exhibits in figure 2, where full-duplex operation is supported.

Regarding applicant's arguments concerning "allocating", the examiner respectively disagrees, since Petri discloses in column 4, lines 5-6, support for allocating the respective channels.

Regarding applicant's arguments concerning "suppressing", the examiner respectively disagrees, since Petri provides support for attenuating the less active signal.

Regarding applicant's arguments concerning "blocking", the examiner respectively disagrees, since Petri provides support for the variable amounts of attenuation (i.e., controlling the amount of blocking).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation is based on knowledge generally available to one of ordinary skill in the art. Applicant is further directed to pages 6-8 of the previous office action for the specific motivation.

Regarding applicant's arguments concerning "duration of a signal", the examiner directs applicant to the above rejection where it is clear that support is found at column 4, lines 40-68 and exhibited in figure 4.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to modify was addressed in the previous office action.

Regarding applicant's arguments concerning "duration of a signal", the examiner directs applicant to the above rejection where it is clear that support is found at column 4, line 64 through column 5, line 5.

Regarding applicant's arguments concerning "second and third clauses", the examiner respectively disagrees since the combination more than adequately provides support for the claimed limitations.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

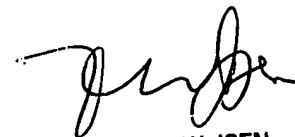
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferey F. Harold whose telephone number is (703) 306-5836. The examiner can normally be reached on Monday-Friday 7:30am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.


JFH

November 5, 2001


FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2700